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NOTES FROM PACIFIC COAST OBSERVATORIES.

In connection with the meeting at Stanford University on April 4-7, of the Pacific Division of the American Association for the Advancement of Science, the Astronomical Society of the Pacific, as one of the affiliated societies of the Association, met on Friday, April 6.

The following papers were given at these sessions of the Society. It is planned to publish in the next number of the PUBLICATIONS more complete abstracts of these papers, and probably certain of the papers in full.

PROGRAM OF THE MEETING OF THE ASTRONOMICAL SOCIETY OF THE PACIFIC, ON APRIL 6, 1917, AT STANFORD UNIVERSITY.

Morning Session, 9:30 A. M. to Noon.

The Relationship of Stellar Motions to Absolute Magnitude, by W. S. Adams and G. Strömberg.

The rapid increase of average radial velocity with increase of proper motion among the stars observed at Mt. Wilson is discussed briefly, and thru the aid of a mean parallax formula the linear velocities in space are derived and compared. The absolute magnitudes obtained by the spectroscopic method are utilized to establish the relationship between velocity and magnitude.

On the Variations in the Periods of Variable Stars in Messier 3, by Harlow Shapley and Helen Davis.

Recent series of plates with the 60-inch reflector give a time-interval of twenty-one years since the first Harvard observations, and afford an opportunity to test for irregularities or secular variations. A number of cases of changing light-elements have been found.

Probable Errors in Meridian Circle Observations, by R. H. Tucker.

Discussion of fourteen hundred simultaneous readings of both circles, for errors of graduation and of circle readings; progressive changes in position of circle microscopes; errors of bisection in daylight hours, and at night; bisection on the nadir. Count of five thousand residuals for tests of the probable error.

A Study of Absorption Effects in the Spiral Nebulae, by H. D. Curtis.

From a study of the Crossley negatives the existence of lanes of dark absorbing matter is shown to be a fairly common characteristic of the spirals. Seventeen edgewise spirals show the phenomenon, and the asymmetry prevailing in many spirals seen nearly edgewise gives strong indication of the same effect.

The Masses of the Visual Binary Stars, by R. G. Aitken.

Calculation of the masses of sixteen binary systems for which both the parallax and the orbital elements are well determined gives an average mass 1.9 times that of the Sun. Confirmatory results are also secured from a discussion of the motions of eighty-nine Struve stars, from all visual binaries with a period of forty years or less, and from spectroscopic binaries.

Hypothetical Parallaxes of Thirty-six Stars, by Harlow Shapley.

A remarkably exact equality of the absolute luminosity is found for the variables in clusters. This constancy of absolute magnitude is employed to determine the parallaxes of all the isolated variables of this type. With two or three exceptions, all are more distant than a thousand light-years, and a few are at exceptionally great distances from the plane of the Milky Way.

An Investigation of Certain Nebulae for Evidence of Polarized Light, by W. K. Green.

If the hypothesis that the spiral nebulae and certain extended nebulae are shining by reflected light is correct, this light should be partially polarized. The problem is discussed and a statement given of the progress thus far made in an effort to detect polarization.

Afternoon Session, 1:30 to 5:00 P.M.

Five Southern Spectroscopic Binaries and Light-Variables of the *δ Cephei* Class, by G. F. Paddock.

From measures of plates taken by the D. O. Mills Expedition at Santiago, Chile, five southern variables are found to be spectroscopic binaries, and to show the characteristic Cepheid peculiarity of essential coincidence of maximum light with maximum velocity of approach. The orbits have similar eccentricities and amplitudes, the latter averaging about thirty kilometers.

Pole Effect in Astrophysical Observations, by Charles E. St. John and Harold D. Babcock.

The 6^{mm} iron arc fed by a current of 6 amperes, whether of a Pfund or International form, shows a marked pole effect in the case of the sensitive lines of Groups *d* and *e*. When such arcs are used as sources of reference lines, in determining the displacement of lines in solar and stellar spectra, indications may be obtained whose interpretations are misleading when based upon the assumption that the peculiarities are due to solar and stellar conditions, as the unrecognized shifts of these lines to longer wavelengths in the arc produce apparent displacements of the solar and stellar lines to the violet.

Spectroscopic Observations of Relative Motions in the Orion Nebula, by W. W. Campbell and J. H. Moore.

The interferometer observations of Messrs. Buisson, Fabry and Bourget on the lines Hβ, Hγ, and the ultra-violet pair at 3727A of this nebula, showed that, in addition to local variations of velocity, there are indicated great collective movements in the nature of a general rotation about a southeast, northwest line thru the trapezium region. In the present paper are discussed the results of measures of velocity by the ordinary spectrographic method in the same and other regions of the Orion Nebula, using the nebular lines 5007A, 4959A and Hβ.

On the Forms of Spectral Lines Observed in the Planetary Nebulae N. G. C. 7662 and N. G. C. 2392, by W. W. Campbell and J. H. Moore.

Results are given of a study of the interesting phenomena of the doubled spectral lines in the central portions of the two planetaries N. G. C. 7662 and N. G. C. 2392, in which the observed effects are quite marked. Several hypotheses to account for the forms of these lines are examined in the light of the observational data.

On Certain Asteroid Observations Reported by Metcalf in December, 1916, by A. O. Leuschner.

A discussion is given of the computations which have been made in the effort to secure an orbit which will satisfy the observations mentioned.

Note on Comet *b* 1916 (Wolf), by R. T. Crawford.

From the residuals secured by comparing recent observations by Gallo, Aitken, and Barnard with the orbit of this comet computed by the author and D. Alter it is shown that the orbit represents the comet's motion with great accuracy. This result upholds the author's contention that the orbit could not be a short period ellipse, as was at first announced.

Long Period Variable Stars, by S. D. Townley.

The paper comprises a résumé of our present knowledge of the long period variable stars and a discussion of the various theories bearing upon them.

LIGHT ELEMENTS OF VARIABLE NO. 37 IN MESSIER 3.

In a recent Harvard Circular (No. 193) Professor Bailey calls attention to the existence of a very significant relationship in the length of period among the different sub-types of variables in the globular clusters Messier 5 and ω Centauri. The duration of the cycle of variation of those stars for which the light curves approximate sine curves is unusually short, and is, on the average, only one-half the mean period of another group of typical variables in each system. Bailey also finds one probable case of a peculiarly short period